University of Alberta

Self-Monitoring and Affect-as-Information: Individual Differences Moderate the Effects of Mood and Attributions for Mood on Ratings of Life Satisfaction

by

Carrie Ann Lavis

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A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Self-Monitoring and Affect-as-Information: Individual Differences Moderate the Effects of Mood and Attributions for Mood on Ratings of Life Satisfaction submitted by Carrie Ann Lavis in partial fulfillment of the requirements for the degree of Master of Arts.

Robert C. Sinclair

Gay L. Bisanz

Berna J. Skrypnek

APRIL 9, 1997

This thesis is dedicated to my mother Barbara Lavis and my grandfather Howard Beam, without whom none of this would ever have happened. I want to thank you both for your unconditional support, and for always believing in me.

Abstract

Mood states affect judgments of life satisfaction only when people have no external attribution for their mood. The present study addressed self-monitoring as a moderator of this effect. High or low self-monitors in induced happy or sad moods were given an external attribution or no attribution for their mood and rated their current mood and life satisfaction. Low self-monitors were unaffected by the attribution manipulation and rated their moods and lives more positively in the happy condition. High self-monitors, without an overt external attribution, rated their moods more positively in the happy condition, but no mood effect emerged on life satisfaction. High self-monitors in the external attribution condition parsed their affect-related thoughts from their ratings and rated their moods and life satisfaction more negatively in the happy condition. Implications in terms of individual differences as moderators of the effects of mood on judgments and directions for future research are discussed.

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Introduction

Previous research has shown that how we feel influences how we think. For example, Bower (1981) argued that a person's affective state influences memory. Bower demonstrated that happy people encode more positively valenced information and sad people encode more negatively valenced information. Further, happy and sad people show mood-congruent retrieval. Thus, it is important that we study and understand the effects of mood on cognitive processes.

The affect-as-information hypothesis maintains that affective states have both directive and informational functions (Clore, Schwarz, & Conway, 1994; Schwarz & Clore, 1983). Further, attending to one's current affective state is not only hypothesized to provide information about one's life, but also an assessment of the current situation (Clore et al., 1994; Ottati, Terkildsen, & Hubbard, in press; Sinclair & Mark, 1992; Sinclair, Mark, & Clore, 1994; Soldat, Sinclair, & Mark, 1997) which affects information processing and judgments (Ottati et al., in press; Sinclair et al., 1994; Soldat et al., 1997).

Tests of the Affect-as-Information Hypothesis

Schwarz and Clore (1983) proposed that affective states can provide individuals with information about the state of their lives in general. Happiness provides information that life is satisfactory, whereas sadness provides information that life is not satisfactory. Schwarz and Clore (1983) supported the affect-as-information position through a series of studies in which happy or sad people were provided with either no attribution or an external attribution for

their moods and both current mood and life satisfaction were measured. They found that happy and sad people differed on ratings of current mood regardless of attribution condition. In the no attribution condition happy people also reported greater life satisfaction than did sad people; however, this effect was attenuated in the attribution condition. Thus, they demonstrated that providing an external attribution for mood state led people to discount their mood as a source of information about their life satisfaction; that is, moods only affected ratings of life satisfaction when moods were seen as informative.

The cognitive tuning extension of the affect-as-information hypothesis proposes that affective cues lead to differences in the style of cognitive processing used in a given situation (Clore et al., 1994; Sinclair & Mark, 1992; Sinclair et al., 1994). According to Sinclair and Mark (1992), happy and sad moods lead to differential processing strategies with happy people engaging in nonsystematic, superficial, less detail-oriented and heuristic processing, whereas sad people engage in systematic, detail-oriented processing and cognitive elaboration. These processing strategy differences manifest themselves in differential accuracy on various tasks, with sad people displaying greatest accuracy (see, e.g., Sinclair, 1988; Sinclair & Mark, 1992, 1995). One explanation for these differences is that moods not only provide substantive information about one's life, but moods also provide information about the nature of situations and the status of one's decision-making processes. Happy moods might suggest that situations are benign, that a person does not need to devote a great deal of energy to judgments, and that a person has been making good

judgments, whereas sad moods might suggest that situations are threatening or important, that a person needs to devote energy to judgments, and a person has been making bad judgments. Consistent with this explanation, Sinclair et al. (1994) had happy or sad people either attribute their moods externally or not and read either strong or weak arguments supporting a particular position. In the no attribution condition, sad people engaged in elaboration (Petty & Cacioppo, 1986) and were persuaded by strong but not weak arguments, whereas happy people failed to elaborate and were equally persuaded by strong and weak arguments. In the external attribution condition, where moods were not informative, both happy and sad people engaged in a moderate degree of elaboration and were persuaded by strong but not weak arguments. Thus, it appears that moods provide information about the status of one's life and of one's decision-making processes (see also Ottati et al., in press; Soldat et al., 1997).

Self-Monitoring as a Moderator of Affect-as-Information Effects

Self-monitoring is an individual difference measure that might moderate affect-as-information effects. Self-monitoring refers to the way in which people monitor and control their expressive behavior (Snyder, 1974; Gangestad & Snyder, 1985; Snyder & Gangestad, 1986). According to Snyder's (1974) theory of self-monitoring, individuals are constantly attempting to modify their appearance and behavior in accordance with social settings. Individuals high in self-monitoring (high self-monitors) are highly aware of the image they are projecting to others and use environmental cues in regulating their behavior

(Snyder & Ickes, 1985). High self-monitors place considerable emphasis on the situation and, as a result, their behavior often varies greatly from situation to situation. Conversely, those low in self-monitoring (low self-monitors) are more tuned in to internal states and do not use situational variables as often, or to as great a degree, in guiding their behavior. Snyder and Ickes (1985) argue that, as a result, low self-monitors are likely to display high consistency in their behavior across a variety of situations.

Snyder (1974) maintains that an essential aspect of self-monitoring is an acute awareness of situational cues, particularly those cues that are affective in nature. Thus, high self-monitors look to environmental factors for guidance when attempting to present the most socially acceptable appearance. Low self-monitors, on the other hand, are not as likely to use external affective cues, and thus are less likely to use environmental influences in making judgments about appropriate behavior.

It seems likely that self monitoring might moderate affect-as-information effects. High self-monitors may be attending so closely to the affective aspects of the situation that even when they are not cued to an external cause as the source of their mood, they are automatically attributing their mood externally. Low self-monitors, on the other hand, are more likely to view their mood states as internally driven. It may then be the case that low self-monitors will continue to attribute their mood internally even when given an external attribution for their mood; that is, low self-monitors may chronically internalize their moods. If this is the case, then high self-monitors will exhibit the typical pattern of effects usually

found with externally attributed mood manipulations in the absence of such attributions; thus high self-monitors should not see their moods as informative when they have no external attribution for their mood. Low self-monitors should always see their mood as informative, even when they are explicitly cued to external causes as the source of their mood.

The present study attempted to address these issues by providing high and low self-monitors with either an external attribution or no attribution for an induced mood state and measuring both current mood and life satisfaction. Our hypothesis assumes that providing participants with an external attribution for their mood should interfere with mood effects on judgments of life satisfaction, and replicate the typical Schwarz and Clore (1983) affect-as-information effects. That is, happy participants who attribute their mood state externally should report lower life satisfaction than happy participants with no external attribution. Conversely, sad participants with an external attribution should report higher life satisfaction than sad participants with no attribution for mood.

These effects should, however, be moderated by self-monitoring. In the case of low self-monitors, because this group is chronically internally oriented, external attribution manipulations should have no effect on reports of either current mood or life satisfaction. Thus, we predict that for low self-monitors, there will only be effects for the mood induction, not the attribution manipulation. The predicted pattern and contrast weights for low self-monitors is presented in Figure 1. As is apparent from the figure, we expect low self monitors to display

Insert Figure 1 About Here

mood effects on both judgments of current mood and life satisfaction, with happy participants reporting more positive mood and higher life satisfaction than sad participants, regardless of attribution for mood.

High self-monitors, on the other hand, are always highly aware of situational cues, and so we expect them to automatically externally attribute their mood in the absence of an external attribution. When high self-monitors are given an external attribution, however, we expect that this will lead them to parse their affect-related thoughts from ratings of mood and life satisfaction, resulting in a contrast effect on their current mood and on life satisfaction. The predicted pattern and contrast weights for high self-monitors is presented in Figure 2. As is apparent from the figure, we expect high self-monitors to exhibit

Insert Figure 2 About Here

typical affect-as-information patterns of responding when they are given no external attribution. This means that participants will not see their mood as informative, and thus, while reporting more positive current moods in the happy condition than in the sad condition, mood will have a small effect on ratings of life satisfaction. Providing high self-monitors with an external attribution however, may lead to an effect similar to Martin's (1986) reset effect. Martin demonstrated that stopping participants prior to task completion led to a shift in

processing (reset), resulting in contrast on subsequent ratings. Cuing high self-monitors to an external attribution may lead to similar reset or contrast effects. Because high self-monitors are automatically externalizing, at a level out of conscious awareness, explicitly cuing them to an external attribution will cause them to reset; thus they will parse their affect-related thoughts from their ratings of mood, leading participants to report feeling less positive affect in the happy condition than in the sad condition. This parsing effect would occur because high self-monitors automatically externalize their moods. Thus, providing an explicit external attribution would lead them to shift to controlled processing where they would infer that they are actually feeling the opposite of the affect-related thoughts that they are presently thinking. Now, their moods would be perceived as the opposite of their thoughts, and as informative about their lives. This should lead to contrast effects on life satisfaction with happy participants reporting lower life satisfaction than sad participants in the attribution condition.

Method

Screening

Participants (n = 952) from introductory psychology classes at the University of Alberta completed Snyder's (1974) 25-item self-monitoring scale (SM) during a mass testing session in which they completed a battery of measures, in randomized order, for various researchers (a copy of the self-monitoring scale is presented in Appendix A). All were volunteers who participated in order to partially fulfill a course requirement or for extra credit toward their final grade. The SM scale was scored according to the method

presented in Snyder (1974). The sum of the items formed a moderately internally consistent index of SM (Cronbach's alpha = .69). Participants scoring above 16 were considered high self-monitors and those scoring below 9 were considered low self-monitors. These cutoffs approximate Snyder's (1974) original cutoffs of 15 and 9.

Participants

Of the 350 eligible participants, 116 agreed to participate in the study when contacted by telephone. All were undergraduate volunteers from the University of Alberta. Participants from introductory psychology courses participated in order to partially fulfill a course requirement or for extra credit toward their final grade.

Procedure

Participants were telephoned at home and were told that, as a result of their responses to one of the questionnaires from the mass testing, the researchers would like them to participate in another study (a copy of the telephone script is presented in Appendix B). Using a variation of Schwarz and Clore's (1983, experiment 1) soundproof room study, participants, who were run individually, were led to believe that they would be participating in a study assessing the effects of a time delay on sound recognition. Participants were told that they would sit in a soundproof room and listen to a series of tape recorded, computer-generated tones, on which they would later be tested for recognition. They were informed that they would listen to a series of 10 sets of 3 tones each, followed by a 20 min waiting period, after which they would listen to

a second comparison series of tones. They were further informed that, as a filler task, during the waiting period they would be asked to complete some short questionnaires that were unrelated to the present study. One of the filler tasks purportedly involved collecting data to develop a life-events inventory. The sound recognition portion of the study was bogus and served to provide an excuse for the use of the unusual soundproof room for the attribution manipulation. The questionnaires that participants were asked to complete during the (again, bogus) 20 min waiting period actually consisted of a mood induction and subsequent measures of current mood and life satisfaction (described below).

Attribution Conditions. Participants were randomly assigned to either an attribution or no attribution condition for their mood state. In the attribution condition, participants were told prior to entering the soundproof room that the room that they would be tested in had made other participants feel strange. Those who were assigned to the happy condition were told that the room had made others feel "elated, or kind of high," while those in the sad condition were told that the room made others feel "tense, and kind of depressed" (Schwarz & Clore, 1983). Participants were then told that the Psychology Department, in an attempt to find the source of the feelings attributed to the room, had asked researchers to distribute a questionnaire to participants assessing their feelings while in the room. Participants were then seated alone in the soundproof room, with the door closed, ostensibly so the researcher could go get the room evaluation questionnaire. After 2 min, the researcher returned with the

questionnaire (a copy of this measure in presented in Appendix C) that asked participants to rate various aspects of the room. Participants were again left alone in the room to complete the questionnaire.

Participants in the no attribution condition were told that the Psychology Department was conducting a survey about the university campus. Participants were given a questionnaire asking for ratings of various aspects of the campus (a copy of this measure is presented in Appendix D). No mention was made of any strange feelings associated with the soundproof room. As was the case for participants in the attribution condition, participants in the no attribution condition were left alone for 2 min while the researcher apparently retrieved the questionnaire, and were, again, left alone in the room to complete the questionnaire.

After the researcher collected the completed room/campus evaluation questionnaire, participants were given final instructions about the tape recording. They were told to open the door to the soundproof room when they finished listening to the tape. The researcher then started the tape and left the participant alone in the soundproof room. When the tape was finished, participants opened the door to the soundproof room to signal the researcher that they were done.

Mood Induction. Participants were randomly assigned to either happy or sad mood induction conditions. Participants were not informed that they would be undergoing a mood induction, but were instead told that the researchers were interested in collecting some data for the development of a life events

inventory to be used in future research. Participants were asked to draw a slip of paper from a box that contained 200 slips apparently with different types of life events represented on each slip. There were actually two boxes, one containing 200 slips that said "happy," the other containing 200 slips that said "sad." The life events protocol served as a mood induction (see Schwarz & Clore, 1983). Participants were asked to recall events in the past 5 years that made them feel either happy or sad. Participants were instructed to spend the entire time of a 20 min period completing the life events inventory and were left alone in the soundproof room with a pen and a packet of materials.

The instructions on the happy packet indicated that participants were to write about 5 or 6 events that had happened to them in the last 5 years that made them feel very very good. Participants were instructed to focus on each happy event, and vividly recall what led up to the event. Further, participants were asked to relive each experience in their mind's eye, and describe the event in careful detail, while trying to relive all the positive feelings associated with each event. The instructions on the sad packet indicated that participants were to write about 5 or 6 events that had happened to them in the past 5 years that had made them feel very very sad. Sad participants were instructed to focus on each sad event and vividly recall what led up to each event and relive each experience in their mind's eye, while providing detailed descriptions of each event (copies of the happy and sad life events tasks are presented in Appendix E).

Following the life events protocol, participants completed the second

(recognition) portion of the sound memory task in which they listened to a second series of tones and identified those sets that appeared in both series. The second set of tones was identical to the first for all conditions. Once participants were finished, they opened the door to the soundproof room and summoned the researcher. The researcher asked participants to complete one final questionnaire, purportedly to aid in some ongoing research in the psychology department. The questionnaire, a variation of the one used by Schwarz and Clore (1983), consisted of four 11-point scales assessing participants' current mood state and life satisfaction. The scale items were: "How happy do you feel about your life as a whole?" anchored at (1) very unhappy and (11) very happy; "How satisfied are you with your life as a whole these days?" anchored at (1) very dissatisfied and (11) very satisfied; "How happy do you feel at this moment?" anchored at (1) very unhappy and (11) very happy; and "How good do you feel at this moment?", anchored at (1) very bad and (11) very good (a copy of this measure is presented in Appendix F). Thus, the design was a 2 (SM) X 2 (mood) X 2 (attribution) X 2 (measure: life satisfaction, current mood) mixed-model design with participants randomly assigned to conditions in blocks of 4 within levels of SM. SM, mood, and attribution served as between-subject variables and measure was within-subject.

Following completion of the final questionnaire, participants in the sad mood induction condition spent 10 minutes completing a happy life events inventory which acted as a mood restoration procedure. All participants were then fully debriefed (copies of the experimental script and debriefing are

presented in Appendix G).

Results[1]

Manipulation Checks

Two judges, who were blind to conditions, independently evaluated the valence of the life events recalled in the mood induction. Ratings were on 7-point scales anchored at (1) extremely negative and (7) extremely positive. The interjudge reliability was .91. The mean of the judges' ratings served as the dependent variable in a 2 (SM) X 2 (mood) X 2 (attribution) ANOVA. There was a main effect for mood with participants in the happy induction condition (M = 6.33) recalling more positive life events that participants in the sad induction condition (M = 1.82), $F(1, 103) = 1443.13$, $p < .0001$. Further, there was a significant mood X attribution interaction, $F(1, 103) = 4.26$, $p < .05$. In the no attribution condition, people exposed to the happy induction recalled more positive events (M = 6.48) than did people in the happy-attribution condition (M = 6.15), and in the no attribution condition, people exposed to the sad induction recalled more negative events (M = 1.74) than did people in the sad-attribution condition (M = 1.89). Fisher's adjusted least significant difference (LSD) tests indicated that only the happy and sad means differed at the $p < .05$ level; however, the attribution and no attribution conditions did differ from one another, at each level of mood induction, at the $p < .10$ level. No other effects approached significance. We should note that this pattern is inconsistent with an alternative explanation that could be posited for the predicted pattern of effects; that is, during the mood induction, high self-monitors in the no attribution

condition recalled life events that were consistent with the valence in the instructions, whereas high self-monitors in the attribution condition actually recalled events that were opposite in valence to the instructions. If this was the case, then high self-monitors in the attribution condition would report moods that were opposite to the valence of the mood induction condition, but consistent with the valence of the events that they did recall; as is apparent, this was not the case.

We also counted the number of words written by each participant in the life events recall protocols. To ensure that amount written did not differ as a function of SM, mood, and attribution, and that a SM X mood X attribution interaction on amount written could not explain the pattern of results, this measure was subjected to a 2 (SM) X 2 (mood) X 2 (attribution) ANOVA. No effects were significant.

The mean of the two mood measure items served as an index of current mood with low scores (1) indicating negative affect and high scores (11) indicating positive affect. An internal consistency analysis demonstrated that these items formed an internally consistent index of current mood (Cronbach's alpha = .92). A 2 (mood) X 2 (SM) X 2 (attribution) analysis of variance (ANOVA) performed on this measure indicated that the mood induction was effective, with happy participants reporting more positive affect ($\underline{M}$ = 7.70) than sad participants ($\underline{M}$ = 6.65), $\underline{F}$ (1,103) = 8.39, $\underline{p} < .005$; however, this effect occurred in the context of the predicted interaction reported below.

Affect-as-Information Effects

The mean of the two life satisfaction items served as an index of life satisfaction with low scores (1) indicating dissatisfaction and high scores (11) indicating satisfaction. An internal consistency analysis indicated that these items formed an internally consistent index of life satisfaction (Cronbach's alpha = .83). The measure of current mood was subtracted from the measure of life satisfaction and this difference score served as the dependent measure in a 2 (SM) X 2 (mood) X 2 (attribution) X 2 (measure: current mood, life satisfaction) mixed-model ANOVA and the mean square error from this analysis was used in a single orthogonal contrast to test the Schwarz and Clore (1983) pattern of effects (Myers & Well, 1991). The weights for this contrast were 2, 2, -2, -2 for the happy attribution, happy no attribution, sad attribution, and sad no attribution conditions, respectively, for the measure of current mood, and 1, 2, -1, -2 for the corresponding conditions for the measure of life satisfaction. This pattern corresponds to an effect for mood induction on the measure of current mood regardless of level of attribution, and an effect for mood induction on the measure of life satisfaction in the no attribution condition, but little effect for mood induction on the measure of life satisfaction in the attribution condition. This contrast was significant, $F(1, 103) = 12.13$, $p < .001$. The pattern of this effect is presented in Figure 3. As is apparent from the figure, the Schwarz and Clore

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Insert Figure 3 About Here

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pattern of effects was replicated, with mood induction affecting the measure of current mood regardless of attribution condition (and, of course, the happy induction (M = 7.70) leading to more positive moods than the sad induction (M = 6.65)). On the measure of life satisfaction, happy participants reported higher life satisfaction than sad participants in the no attribution condition only (Ms = 8.35, 7.42, 7.40, and 7.72 for the happy-no attribution, sad-no attribution, happy-attribution, and sad-attribution conditions, respectively).

Self-Monitoring as a Moderator of Affect-as-Information Effects

A single orthogonal contrast, using the mean square error described above, was used to test the pattern of effects described in the prediction section (see Figures 1 and 2). The weights for this contrast are described in Figures 1 and 2. The contrast was significant, $F(1, 103) = 23.23$, $p < .0001$. The pattern of this predicted 4-way interaction is presented in Figure 4 (for low self-monitors) and Figure 5 (for high self-monitors). For low self-monitors, there was an

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Insert Figures 4 and 5 About Here

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effect for mood induction on both the measures of current mood (see Figure 4a) and life satisfaction (see Figure 4b), regardless of attribution condition. That is, for low self-monitors, the happy mood induction led to more positive ratings of both current mood (M = 7.97) and life satisfaction (M = 8.41) than did the sad induction (Ms = 6.49 and 7.35 for current mood and life satisfaction, respectively). For high self-monitors, as predicted, participants in the happy-no

attribution condition (M = 8.12) reported more positive moods than participants in the sad-no attribution condition (M = 6.79) and, as expected, this pattern was reversed in the attribution condition (Ms = 6.58 and 6.88 for the happy and sad conditions, respectively; see Figure 5a). On the measure of life satisfaction, as expected, high self-monitors showed no effect for mood in the no attribution condition (Ms = 7.81 and 7.58 for the happy and sad conditions, respectively), but a contrast effect for mood in the attribution condition (see Figure 5b). That is, in the attribution condition, happy participants (M = 6.58) reported lower life satisfaction than sad participants (M = 8.04). This may represent an effect similar to Martin's (1986) reset effect, whereby high self-monitors parse their affect-related thoughts from their ratings of life satisfaction when given an external attribution for their mood, thus leading to contrast.

Discussion

We have demonstrated that differences in self-monitoring play an important role in moderating the effects of mood and attribution for mood on judgments of both mood state and life satisfaction. These results supported our predictions, in that low self-monitors were unaffected by attribution manipulations, and displayed only mood effects on judgments of both mood and life satisfaction, and that high self-monitors displayed affect-as-information effects in the absence of an external attribution, and contrast effects when given an external attribution.[2]

Our results do not appear to be explicable by such alternative explanations as differences in the valence of recalled items for high self-

monitors, or differences in the number of words recalled during the mood induction as explicated in the results section. Our results are consistent with an affect-as-information approach to mood effects on judgments, with low self-monitors always viewing their moods as informative and high self-monitors only viewing their moods as informative when explicitly cued to an external attribution. Further, it does not appear that our results could be accounted for by the Martin, Ward, Achee, and Wyer (1993) stop-rule explication of mood-related processing effects that has been seen as a challenge to the affect-as-information position. A stop-rule account would seem to apply to task performance but not to judgments of mood and life satisfaction, whereas our study addressed the informational value of moods on ratings of current mood and life satisfaction.

These results indicate that individual difference variables like self-monitoring should not be overlooked in discussions of the effects of mood on judgment. The majority of current literature in this area does not take individual differences into account, when clearly they play an important role in affective processes. Further, our results support Snyder's (1974) contention that self-monitoring has important implications in areas involving affect.

Future research is needed to disentangle the specific role played by self-monitoring in the area of affective states and judgmental processes. One area that may be of interest is in the effects of mood on persuasion. One would expect that low self-monitors would always see their moods as informative and thus, display typical mood-related persuasion effects; that is they would attend

to argument strength in the sad but not the happy condition (see, Bless et al., 1990; Sinclair et al., 1994). High self-monitors, however, would not see their moods as informative and thus, both happy and sad participants would attend to argument strength; that is, they would be persuaded by strong but not weak arguments. Finally, additional research should investigate the role of other individual difference variables as moderators of mood effects (e.g., cognitive complexity, locus of control, etc.); doing so would lead to an integration of personality and social cognition and thus, a reintegration of personality and social psychology.

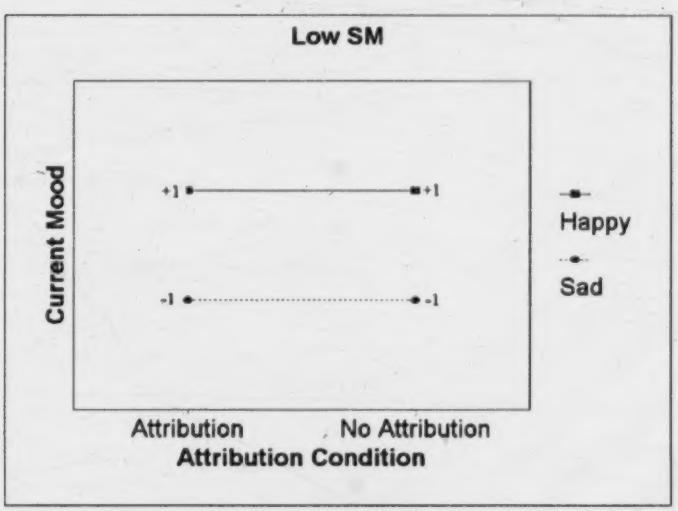
Footnotes

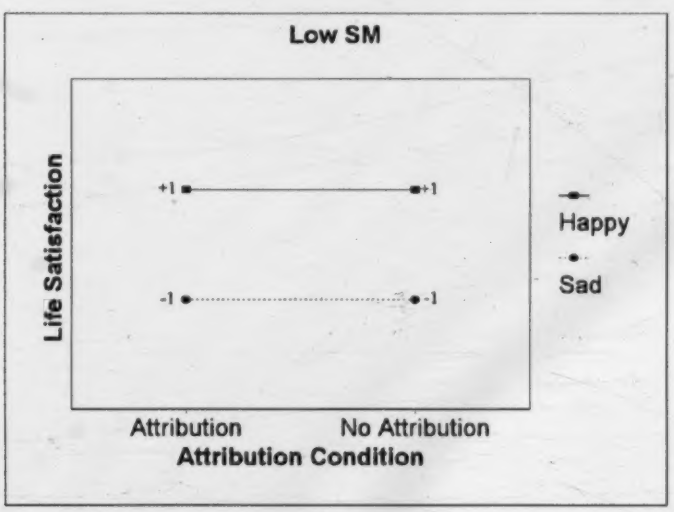
[1]Data from one participant were excluded because the participant was taking antidepressant drugs. Data from four additional participants were excluded because they had participated in similar research and were suspicious. The pattern of effects and levels of significance reported here do not differ from those including these participants.

[2]It should be noted that the contrast effect found on high self-monitors' ratings appears to be driven largely by happy-attribution participants. However, direct comparisons of high and low self-monitors in happy vs sad conditions indicate that contrast effects may emerge largely due to the responding of the sad groups. We believe that these difficulties in interpretation may be due to the fact that the mood inductions used in this study were not very potent and that more pronounced contrast effects would emerge if a more potent mood inductions were used.

Figure 1. Contrast weights and the predicted pattern of ratings of current mood and life satisfaction as a function of induced mood state and attribution conditions for low self-monitors

A

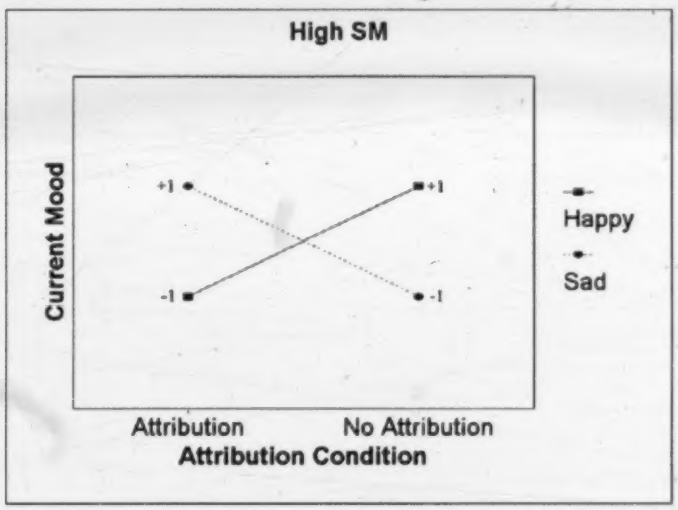


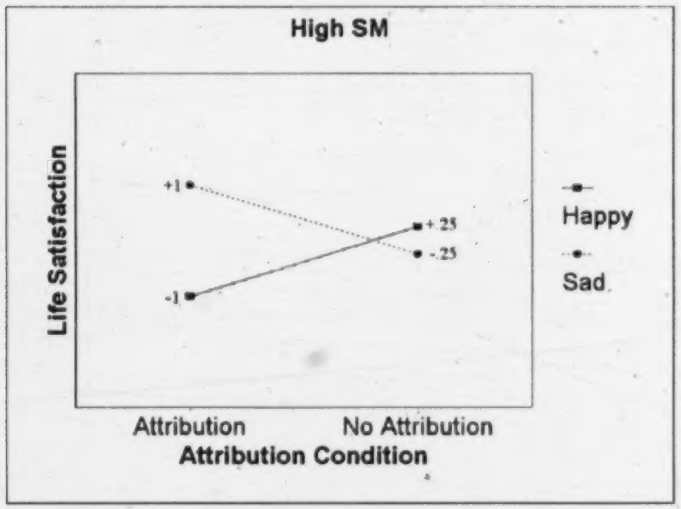


B

Figure 2. Contrast weights and the predicted pattern of ratings of current mood and life satisfaction as a function of induced mood and attribution conditions for high self-monitors.

A

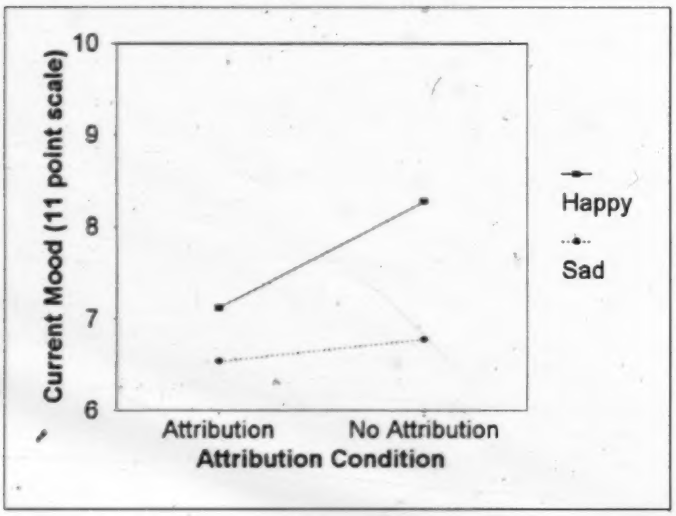


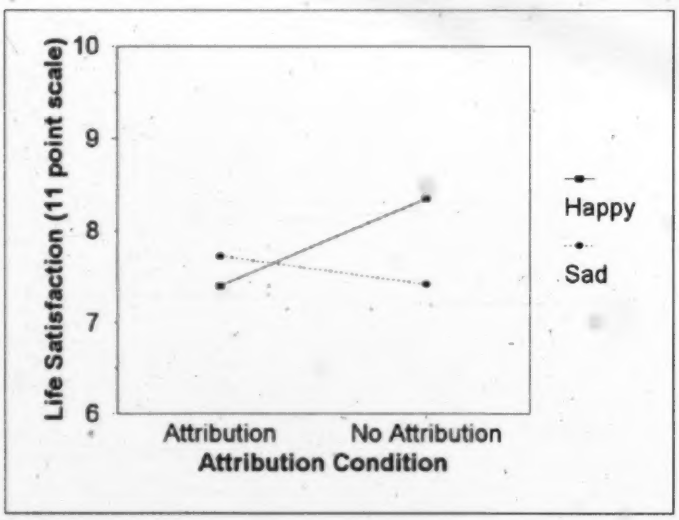


B

Figure 3. Ratings of current mood and life satisfaction as a function of induced mood and attribution conditions.

A

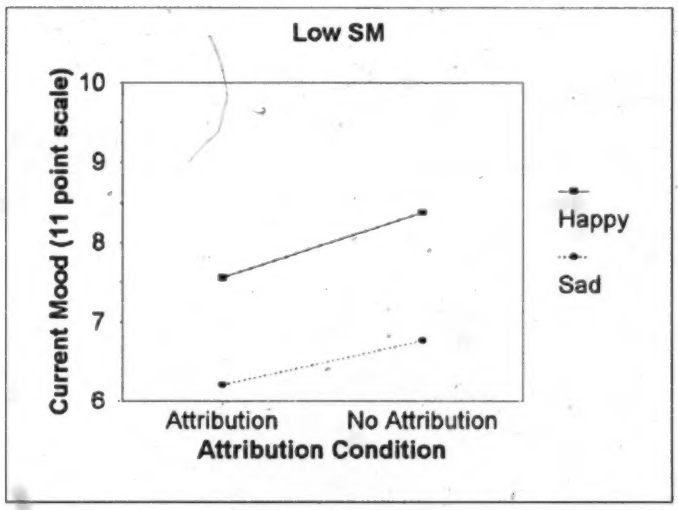


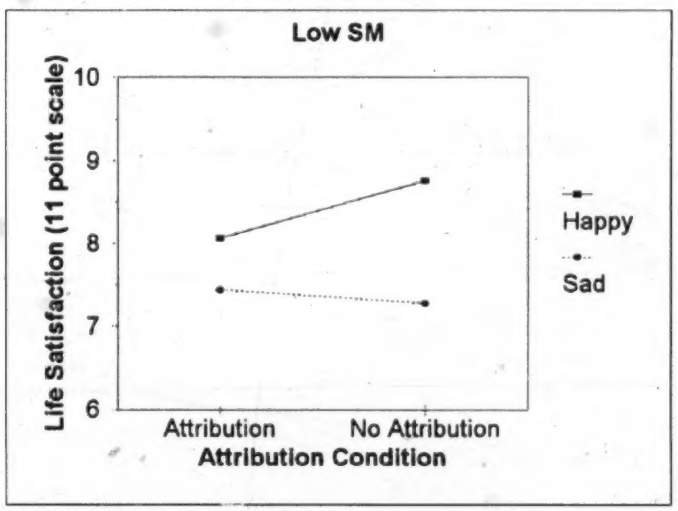


B

Figure 4. Ratings of current mood and life satisfaction as a function of induced mood and attribution conditions for low self-monitors.

A

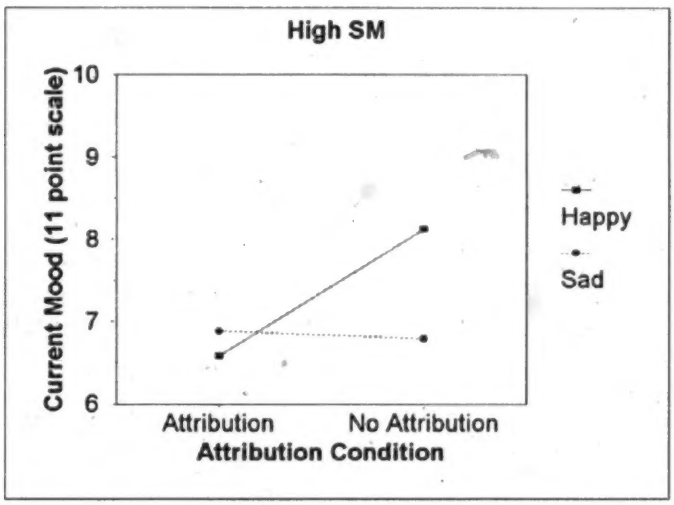


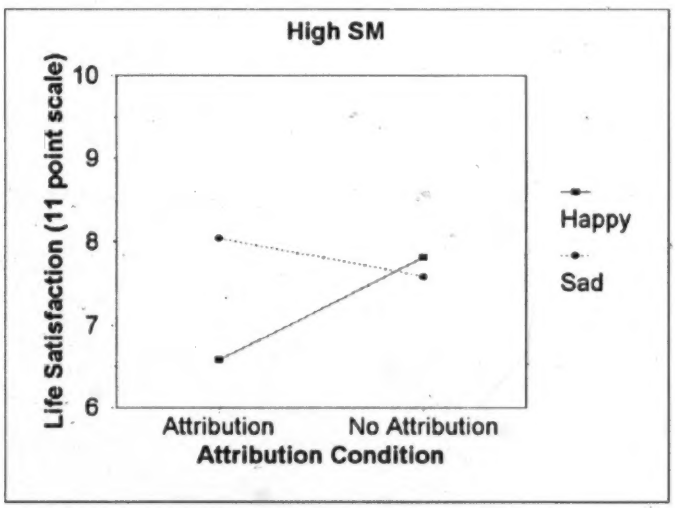


B

Figure 5. Ratings of current mood and life satisfaction as a function of induced mood and attribution conditions for high self-monitors.

A





B

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APPENDIX A

SELF-MONITORING SCALE

The statements on the following pages concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement is TRUE or MOSTLY TRUE as applied to you, place a T in the blank space to the left of the question. If a statement is FALSE or NOT USUALLY TRUE as applied to you, place an F in the blank space to the left of the question.

It is important that you answer as frankly and as honestly as you can. Your answers will be kept in the strictest confidence.

_____ 1. I find it hard to imitate the behavior of other people.

_____ 2. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.
_____ 3. At parties and social gatherings, I do not attempt to do or say things that others will like.
_____ 4. I can only argue for ideas which I already believe.

_____ 5. I can make impromptu speeches even on topics about which I have almost no information.
_____ 6. I guess I put on a show to impress or entertain people.

_____ 7. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
_____ 8. I would probably make a good actor.

_____ 9. I rarely need the advice of my friends to choose movies, books, or music.
_____ 10. I sometimes appear to others to be experiencing deeper emotions than I actually am.
_____ 11. I laugh more when I watch a comedy with others than when alone.

_____ 12. In a group of people I am rarely the center of attention.

_____ 13. In different situations and with different people, I often act like very different persons.
_____ 14. I am not particularly good at making other people like me.

_____ 15. Even if I am not enjoying myself, I often pretend to be having a good time.
_____ 16. I'm not always the person I appear to be.

_____ 17. I would not change my opinions (or the way I do things) in order to please someone else or win their favor.

_____ 18. I have considered being an entertainer.

_____ 19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

_____ 20. I have never been good at games like charades or improvisational acting.

_____ 21. I have trouble changing my behavior to suit different people and different situations.

_____ 22. At a party I let others keep the jokes and stories going.

_____ 23. I feel a bit awkward in company and do not show up quite so well as I should.

_____ 24. I can look anyone in the eye and tell a lie with a straight face (if for a right end).

_____ 25. I may deceive people by being friendly when I really dislike them.

APPENDIX B

PHONE SCRIPT

Hi, may I speak to _____ please? Hi _____, my name is (first and last name) and I'm from the Psychology Department at the U of A. Last semester, in your Psychology 104/105 class, you participated in a mass testing. We're conducting further research based on the data from that testing and we were wondering if you would be interested in participating in another study. The session would take between an hour and an hour and a half, and you would receive two research credits for participating. If you're interested, I'd like to set up a time in which we can conduct this study. **One thing I need to know is: did you participate in any Bob studies last term?** (If yes, then they can't participate in STAR 79, if No or Unsure, then sign them up)

(SET UP TIME):

I have a session free on _____ at _____. Can you come in then? (Arrange a convenient time.)

The study is called STAR 79, and it's in the Biological Sciences Building in room P-326. Someone will be giving you a call the night before your session to remind you about your appointment. So, we'll see you on _____ at _____ in room P-326. Bye.

APPENDIX C

January 8, 1996

Psychology Department Notice
Department of Psychology
P-220 Biological Sciences Building
University of Alberta

Campus Mail

To All Staff and Graduate Students:

Re: Research Conducted in Room P-326

The aforementioned are asked to inform their research assistants to administer the following questionnaire to all volunteers or paid participants in any psychology study associated with the use of the sound-proof room (P-326) in this semester of this year. This is greatly appreciated as we are trying to determine the source of the associated feelings that have been attributed to the room. In addition, due to the fact that the impact of the room may depend on the amount of time spent in it, it is advisable to administer the questionnaire to different participants at varying times during the experimental session (e.g., some at the beginning, some during, and some at the end of the experiment.) Please ask the participant to fill out the questionnaire and thank them for their assistance in this matter. Thank you and we apologize for any inconvenience.

Please indicate at what time the questionnaire was administered.

1. At the beginning of the experiment
2. 20 minutes into the experiment
3. At the end of the experiment

Room Evaluation (P-326)

Please complete this questionnaire and hand it back to the experimenter as directed. Thank you for participating in the Psychology Department's research.

Use the following rating scale for each item below and circle the appropriate number on the scale beside each item that best describes your evaluation of the room on that item.

1=very poor
2=quite poor
3=somewhat poor
4=neutral
5=somewhat good
6=quite good
7=very good

The size of the room.	1 2 3 4 5 6 7
The temperature of the room.	1 2 3 4 5 6 7
The ventilation in the room.	1 2 3 4 5 6 7
The lighting in the room.	1 2 3 4 5 6 7
The color of the room.	1 2 3 4 5 6 7
The comfort of the room.	1 2 3 4 5 6 7
The room makes me feel:	1 2 3 4 5 6 7
The general atmosphere of the room.	1 2 3 4 5 6 7

Are there any other aspects of the room that make you feel either comfortable or uncomfortable, or different in any way? (Circle one) **YES NO**

If Yes, please explain why (continue on the next page if more room is needed):

APPENDIX D

January 8, 1996

Psychology Department Notice
Department of Psychology
P-220 Biological Sciences Building
University of Alberta

Campus Mail

To All Staff and Graduate Students:

Re: Research Conducted in Winter Term, 1996

The aforementioned are asked to inform their research assistants to administer the following questionnaire regarding the university campus to all volunteers or paid participants involved in psychological studies in this semester of this year. Please ask participants to fill out the questionnaire and thank them for their assistance in this matter. Thank you and we apologize for any inconvenience.

Please indicate at what time the questionnaire was administered.

1. At the beginning of the experiment
2. 20 minutes into the experiment
3. At the end of the experiment

U of A Campus Evaluation

Please complete this questionnaire and hand it back to the experimenter as directed. Thank you for participating in the Psychology Department's research.

Use the following rating scale for each item below and circle the appropriate number on the scale beside each item that best describes your evaluation of the University of Alberta campus on that item.

1=very poor
2=quite poor
3=somewhat poor
4=neutral
5=somewhat good
6=quite good
7=very good

The size of the campus.	1 2 3 4 5 6 7
The temperature of the buildings on campus.	1 2 3 4 5 6 7
The ventilation of the buildings on campus.	1 2 3 4 5 6 7
The lighting in the buildings on campus.	1 2 3 4 5 6 7
The layout of the buildings on campus.	1 2 3 4 5 6 7
The general atmosphere of the campus.	1 2 3 4 5 6 7

Are there any other aspects of the campus itself that make you feel either comfortable or uncomfortable, or different in any way? (Circle one) **YES NO**

If Yes, please explain why (continue on the next page if more room is needed):

APPENDIX E

Development of a Life Events Inventory (Happy)

One thing we'd like to as you to do today is to provide us with some data that will help us develop a life events inventory that will eventually be used with university students. We've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life event. This approach seems to result in more detailed and easily coded life events. Different people are being asked to recall different types of events.

We're looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of events. We're going to give you 20 minutes to write down some of the events that have happened to you in the last 5 years that have made you feel very very good. We want you to focus on each good event and vividly recall what led up to each event. We'd like you to relive each experience in your mind's eye. For each good event write about what led up to it and who was involved. Be sure to carefully describe the positive feelings that you were having at the time of each good event and be sure to try to relive these positive feelings as you write. Be sure to describe each good event in great detail and discuss as many positive thoughts and feelings related to each good event that you can. In detail, write a few paragraphs about 5 or 6 of these events that made you feel very good. As I said, try to relive the good events. We'll give you 20 minutes -- please try to use all of the time (but you don't need to use all of the pages). Begin now.

Development of a Life Events Inventory (Sad)

One thing we'd like to as you to do today is to provide us with some data that will help us develop a life events inventory that will eventually be used with university students. We've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life event. This approach seems to result in more detailed and easily coded life events. Different people are being asked to recall different types of events.

We're looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of events. We're going to give you 20 minutes to write down some of the events that have happened to you in the last 5 years that have made you feel very very sad. We want you to focus on each sad event and vividly recall what led up to each event. We'd like you to relive each experience in your mind's eye. For each sad event write about what led up to it and who was involved. Be sure to carefully describe the negative feelings that you were having at the time of each sad event and be sure to try to relive these negative feelings as you write. Be sure to describe each sad event in great detail and discuss as many negative thoughts and feelings related to each sad event that you can. In detail, write a few paragraphs about 5 or 6 of these events that made you feel very sad. As I said, try to relive the sad events. We'll give you 20 minutes -- please try to use all of the time (but you don't need to use all of the pages). Begin now.

APPENDIX F

CURRENT MOOD AND LIFE SATISFACTION QUESTIONNAIRE

Please answer the following questions which will help us in selecting appropriate response scales for the Life Events Inventory we are currently developing. Circle the most appropriate number.

1. How happy do you feel about your life as a whole?

1	2	3	4	5	6	7	8	9	10	11
very unhappy										very happy

2. How satisfied are you with your life as a whole these days?

1	2	3	4	5	6	7	8	9	10	11
very dissatisfied										very satisfied

3. How happy do you feel at this moment?

1	2	3	4	5	6	7	8	9	10	11
very unhappy										very happy

4. How good do you feel at this moment?

1	2	3	4	5	6	7	8	9	10	11
very bad										very good

APPENDIX G

MOOD AS INFORMATION SCRIPT--ATTRIBUTION CONDITION

Hi, are you here for Star 79? I'm _____, and I'm working with Dr. Paul Cornwell in the psychology department. Just follow me in and have a seat over here. **(Point to empty chair at table in front of chamber, door open so that they can see in, close room door behind them, have a seat across from them)**

First I'd like to tell you a little about what we're studying. Star 79 is a study assessing the effects of time delay on sound recognition. For our sound recognition task, you will hear a series of computer-generated musical notes played on a tape recorder. After that, you'll spend 20 minutes completing some questionnaires related to another project that we're interested in, then you'll be played a second series of notes, and asked to identify the notes you heard earlier. Because we're interested in very subtle differences in sound, we're conducting our study in a special sound-proof room, to ensure that no outside noise interferes with the notes you'll be hearing.

BE SURE YOU KNOW WHAT MOOD CONDITION THEY'RE IN!!!

In other studies using this room, some participants have reported that the room made them feel ***Elated, or kind of high*** **OR** ***Tense, and kind of depressed***, perhaps because of its sound proof quality. Because of these unusual reactions, the psychology department has asked us to have our participants complete a questionnaire concerning specific characteristics of the room, and how it makes them feel. So, one of the things we'll ask you to do right after you enter the sound proof room is complete a Room Evaluation questionnaire, prior to the sound memory task.

For the first part of our sound memory task, you'll enter the sound-proof room and listen to a series of computer-generated musical notes played on a tape recorder. This series of notes consists of 10 sets of three notes each. Once you've listened to all 10 sets, you'll wait for 20 minutes. After the 20 minutes, we'll ask you to listen to another series of 10 sets, and to identify those sets of notes you've heard before. Do you understand what we want you to do? **(Wait for overt response)** In front of you is a consent form. Please read and sign the form if you agree to participate. **(Wait until S has signed consent form).** I'll do a practice trial now to show you what the notes will sound like. **(Start tape recorder, play through 1 set for them).** Do you have any questions? **(Wait for overt response)**

Now we're also interested in the study of people's life histories. We're trying to create a life events inventory that can be used in future research. We're asking people to write down various life events that have happened to them over the past 5 years. We're interested in literally hundreds of different types of events, but it would be difficult to have people write about that many different things, so we're randomly assigning everyone to write about just one type of event. You'll be asked to draw a slip of paper representing one of 200 different types of events from a box. Then, I'll get you the appropriate life events inventory packet and you'll be asked to complete it during the 20 minute delay.

Do you have any questions before you go into the soundproof room? Okay, now you understand what I've asked you to do, so let's go to the room now, and I'll get you set up.

(Go to the chamber with participant, open the door)

This is the soundproof room. Over there is the tape recorder (point to tape recorder), and this is where I'd like you to sit while completing the task.

I'll have you sit in the room and get used to it for a couple of minutes, and then I'll open the door and give you the room evaluation questionnaire. (S sits for 2 min) Here's the room evaluation questionnaire. Please complete it, then open the door when you're done, so I know you're ready to continue. (After S has completed questionnaire)

Now we're ready to present the first set of musical tones. As I said, there are 10 sets of 3 tones. After the last set of tones is presented, please open the door so that I know you're ready to continue. I'll start the tape now and close the door.

(S opens door)

During the 20 minute time delay, I'm going to have you write about one of 200 possible life events. Please draw a slip of paper from this box and read it to me. (S says happy or sad) Okay, that means that you'll write about an event from the past 5 years that made you feel _____. I'll get the appropriate life events packet now. (Go to a box, sift through and look like you're searching for the correct inventory.) Here's the life events packet. Please read the instructions and spend the entire 20 minutes working on the task. I'll shut the door and come back in 20 minutes. (After 20 min)

Okay, we're ready for the second part of the sound memory task. This cassette has another 10 sets of computer generated musical notes, with a 5 second delay between each set. During this delay, you will be prompted to

indicate whether the set you just heard is one of the 10 sets of notes you heard earlier in the study. This page is for you to mark your answers on. Please take a moment and familiarize yourself with this page. (Once they're familiar with it) Do you understand what we want you to do for this task? (Get overt response) Okay. I'll press play and leave the room. Open the door when you've responded to the last set. (Start tape and leave)

(After S opens door)

I have another questionnaire that the department of psychology has asked me to get participants to complete as part of some ongoing research. Please read the items carefully and respond to all items. When you're done, open the door.

(When S opens door)

For sad participants only: You've been selected as part of a group in our study that reports on 2 different life events, one in the middle of the experiment, and one at the end. For this group, we ask people to write about 2 conflicting, or opposing types of events. Now, what type of life event did you write about before? (Get overt response) A sad event? Well, the opposite of that is easy: a happy event. I'll just go get the inventory for you. (Go get a happy inventory). We'd like you to spend the next 10 minutes writing about events from the past 5 years that made you feel happy. I'll come and open the door when the 10 minutes are up.

(When 10 minutes are up, open the door)

You can come on out now, the session is now over. (Begin debriefing)

MOOD AS INFORMATION SCRIPT –NO ATTRIBUTION CONDITION

Hi, are you here for Star 79? I'm _____, and I'm working with Dr. Paul Cornwell in the psychology department. Just follow me in and have a seat over here. **(Point to empty chair at table in front of chamber, door open so that they can see in, close room door behind them, have a seat across from them)**

First I'd like to tell you a little about what we're studying. Star 79 is a study assessing the effects of time delay on sound recognition. For our sound recognition task, you will hear a series of computer-generated musical notes played on a tape recorder. After that, you'll spend 20 minutes completing some questionnaires related to another project that we're interested in, then you'll be played a second series of notes, and asked to identify the notes you heard earlier. Because we're interested in very subtle differences in sound, we're conducting our study in a special sound-proof room, to ensure that no outside noise interferes with the notes you'll be hearing.

For the first part of our sound memory task, you'll enter the sound-proof room and listen to a series of computer-generated musical notes played on a tape recorder. This series of notes consists of 10 sets of three notes each. Once you've listened to all 10 sets, you'll wait for 20 minutes. After the 20 minutes, we'll ask you to listen to another series of 10 sets, and to identify those sets of notes you've heard before. Do you understand what we want you to do? **(Wait for overt response)** In front of you is a consent form. Please read and sign the form if you agree to participate. **(Wait until S has signed consent form).** I'll do a practice

trial now to show you what the notes will sound like. (**Start tape recorder, play through 1 set for them**). Do you have any questions? (**Wait for overt response**)

Now we're also interested in the study of people's life histories. We're trying to create a life events inventory that can be used in future research. We're asking people to write down various life events that have happened to them over the past 5 years. We're interested in literally hundreds of different types of events, but it would be difficult to have people write about that many different things, so we're randomly assigning everyone to write about just one type of event. You'll be asked to draw a slip of paper representing one of 200 different types of events from a box. Then, I'll get you the appropriate life events inventory packet and you'll be asked to complete it during the 20 minute delay.

Do you have any questions before you go into the soundproof room? Okay, now you understand what I've asked you to do, so let's go to the room now, and I'll get you set up.

(Go to the chamber with participant, open the door)

This is the soundproof room. Over there is the tape recorder (point to tape recorder), and this is where I'd like you to sit while completing the task.

Before we get started, there's a questionnaire that the psychology department has asked us to get our participants to fill out. Just sit here while I go get the questionnaire. (S sits for 2 min--be sure to get the **campus questionnaire**) Here it is. It's a campus evaluation questionnaire. (Hand questionnaire to S) Please complete it now, then open the door when you're done, so I know you're ready to continue.

(Once S has completed questionnaire)

Now we're ready to present the first set of musical tones. As I said, there are 10 sets of 3 tones. After the last set of tones is presented, please open the door so that I know you're ready to continue. I'll start the tape and close the door. (S opens door)

During the 20 minute time delay, I'm going to have you write about one of 200 possible life events. Please draw a slip of paper from this box and read it to me. (S says happy or sad) Okay, that means that you'll write about an event from the past 5 years that made you feel _____. I'll get the appropriate life events packet now. (Go to a box, sift through and look like you're searching for the correct inventory.) Here's the life events packet. Please read the instructions and spend the entire 20 minutes working on the task. I'll shut the door and come back in 20 minutes. (After 20 min)

Okay, we're ready for the second part of the sound memory task. This cassette has another 10 sets of computer generated musical notes, with a 5 second delay between each set. During this delay, you will be prompted to indicate whether the set you just heard is one of the 10 sets of notes you heard earlier in the study. This page is for you to mark your answers on. Please take a moment and familiarize yourself with this page. (Once they're familiar with it) Do you understand what we want you to do for this task? (Get overt response) Okay. I'll press play and leave the room. Open the door when you've responded to the last set. (Start tape and leave)

(After S opens door)

I have another questionnaire that the department of psychology has asked me to get participants to complete as part of some ongoing research. Please read the items carefully and respond to all items. When you're done, open the door.

(When S opens door)

For sad participants only: You've been selected as part of a group in our study that reports on 2 different life events, one in the middle of the experiment, and one at the end. For this group, we ask people to write about 2 conflicting, or opposing types of events. Now, what type of life event did you write about before? (Get overt response) A sad event? Well, the opposite of that is easy: a happy event. I'll just go get the inventory for you. (Go get a happy inventory). We'd like you to spend the next 10 minutes writing about events from the past 5 years that made you feel happy. I'll come and open the door when the 10 minutes are up.

(When 10 minutes are up, open the door)

You can come on out now, the session is now over. (Begin debriefing)

DEBRIEFING

I'd like to take a few minutes to explain the purpose of our study. I apologize for not being able to fully explain our study to you at the beginning. Hopefully, you can understand that if I told you exactly what we were trying to study, you might have responded differently than the way you actually did. Now that the session is over, I am able to tell you more about our research.

I'm actually working with Dr. Sinclair in the Psychology department. Our study is not primarily concerned with people's recall of musical notes. We're actually interested in how people's attributions for their mood state affect their judgments of their overall well being. In other words, we're interested in how people report feeling about their lives in general, based on both their current mood state, and on the reasons they give for being in that mood. After you listened to the first set of musical notes, you completed a life events questionnaire. That questionnaire was actually a mood induction procedure, designed to make you feel a certain way. This mood induction was our first independent variable, and had 2 levels: happy and sad. Therefore, one of our independent variables was mood, with people assigned to either happy or sad conditions. Our second independent variable was attribution for mood. When you first went into the soundproof room, you filled out a questionnaire. Now depending on what condition you were assigned to, you either completed a room evaluation questionnaire or a campus evaluation questionnaire. Another thing that we're interested in is how people attribute their mood--whether they attribute their current mood to internal factors, or to external causes such as the room they're in. So, half the people in our study were told that the soundproof room might make them feel either elated or tense, while the other half weren't told this. This is our second independent variable, one we call attribution for mood. Half the people were given an external factor to attribute their mood to, while the other half weren't.

So, when you came into the lab today, you were randomly assigned to a particular level of each of our 2 independent variables. Random assignment simply means that each participant in our study has an equal chance of receiving any level of the independent variables, which in this case are mood and attribution.

Sometimes we do research in which we don't manipulate variables, but instead measure predictor variables and criterion variables. That's what we did during the mass testing last term. One of the things we measured then was self monitoring. You were selected for this particular study because of your responses on one of the questionnaires from the mass testing. That questionnaire assessed self-monitoring, which refers to people's awareness of their behavior and its impact on their environment. We split people into 2 groups, high self monitors and low self monitors, based on their scores. High self monitors are people who are primarily externally motivated and very conscious of their behavior. Conversely, low self monitors are more internally motivated and less concerned with the effects of their behavior on their environment.

We hypothesized that people might report their overall well being differently based on a number of factors: what mood state they were in, whether they attributed their mood to internal or external factors, and whether or not they were high or low self-monitors. So, the questionnaire that we had you fill out after you finished writing about life events contained our dependent variables. Our dependent variables were your judgments about your overall well being.

I hope you can see that if I told you that we were changing your mood, and your attribution for that mood, to see how this affected your judgments about your well being, you might have felt a lot of pressure or demand to react one way or the other. You might have felt pressured to react in the way you thought we expected you to on the basis of our theory rather than reacting the way you normally would. The possibility that some participants might react to independent variable manipulations based on what they believe the experimenters expect is called the demand awareness effect. This can be a problem in research because our results could reflect nothing having to do with the psychological processes that we're interested in studying, but could simply reflect demand awareness. I really want to apologize for not explaining exactly what we were studying before the session. Does it make sense to you why I didn't? One thing I'd like to ask you is not to let other people know what we were doing here today because we'll be collecting data for the rest of the term, and if people know what we're studying, it'll really cause problems with our data. So, I hope you can see how having people know our hypotheses in advance of responding would lead to problems in the interpretation of our data.

I'd like you to take this page with you (**give participant mood-appropriate handout debriefing**). It's yours to keep and contains information that relates to the test that you'll be taking on the research component of your introductory psych class.

Sad group only:
Please read the first part of this page now. It describes the reason for the life events task that you completed at the end of the session. It's actually a mood restoration procedure that's designed to make you feel happy before leaving. If you have any questions, feel free to ask me.

Thanks very much for participating in our research. You have been a great help. Without the help of people like you, we would not be able to answer most important scientific questions in psychology. Do you have any questions about the experiment? If you think of any questions later on, please feel free to contact Dr. Sinclair in the Psychology department. His phone number is on the sheet that you're keeping.

Give everyone their scan sheets

Handout Debriefing (Please remove this page and take it with you)

READ THIS SECTION NOW

The experimenters have explained the rationale for our study to you. I'd like to provide you with a little more information. One of the reasons that we conduct research in the area of mood is to understand how our mood states affect our judgments. Much research has suggested that, while happy people tend to cue to happy stimuli and recall happy thoughts, they also tend to devote less energy to judgments. Of course, this means that for some judgments, happy people make more mistakes than do sad people. So, there are some advantages to being sad and some disadvantages to being happy. We're attempting to understand these mood-related processing differences further. We believe that understanding the effects of normal moods on judgments will lead to insights into the effects of more extreme affective states (e.g., severe depression, anxiety disorders, etc.). Further, we are attempting to understand the conditions under which happy moods and sad moods might improve judgments each day that can affect our lives and, of course, our moods do change throughout the day.

If you've found yourself feeling quite sad, down, or stressed out over the past few weeks of your life, this might be the normal kind of feelings that we experience during stressful times in our lives -- indeed, while some of our time at university can be quite fun, there are other aspects that can make any of us feel down -- this is normal. But sometimes, even these normal feelings can be troublesome in our lives. Sometimes, they interfere with our ability to study or work or focus on getting things dome. This is sometimes a warning sign that things are not going well in our lives. If you've been feeling this way, or if you know someone who has been feeling this way, you might consider some options that involve talking with people about problems -- often just doing this helps get over these feelings. Listed below are phone numbers for various agencies located near campus that provide these kinds of services free of charge: 1) Student Counselling Services -- 492-5205; 2) Health Services -- 492-2612; 3) Student Help -- 492-4266; 4) Distress Line -- 482-4257; 5) University Student Advisor (more for academic problems) -- 492-2965; 6) University Hospital Walk-in Clinic -- 492-6501; 7) Sexual Assault Centre -- 492-9771; 8) Academic Support Centre (for study skills problems) -- 492-2682; Dr. Sinclair (for further information about mood effects and this study) -- 492-3822.

READ THIS SECTION LATER

We manipulate independent variables in order to assess how these variables cause changes in other variables called dependent variables. So independent variables are the theoretical causes and dependent variables, the variables that we measure, are the effects or outcomes of our independent variables. Sometimes we do research in which we do not manipulate variables, but instead measure *predictor* variables and *criterion* variables. For example, we could look at gender (Male versus Female) as a predictor of verbal ability scores. This type of study is correlational in nature and because we did not manipulate any variables, we could not make any cause and effect inferences. That is, we couldn't say that gender causes differences in verbal ability because

we cannot manipulate gender. As you're likely aware, there are a lot of differences between men and women, like how men versus women are socialized, that could provide an alternative explanation for any relationship between gender and verbal ability. In the present study, because we manipulated our independent variables and used random assignment, we can make cause and effect inferences. Random assignment to conditions means that each of you had an equal probability of receiving any of the levels of each of our independent variables. Because of this, we know that the Different groups of people who receive the various levels of our independent variables are about the same before our manipulations; that is all groups contain tall people and short people, smart and not so smart people, people who have had a lot of coffee and people who haven't had much coffee, etc.--so height, intelligence, and amount of coffee cannot be what cause any differences on our dependent variables. The only difference between the groups is the levels of our independent variable, so our independent variable has to be the cause of any change that we find in our dependent variable. So, if the groups are the same before our manipulations, then any differences that we find on our dependent variables must be due to our independent variables causing some effect.

Part of the scientific process involves building on previous research in order to attempt to clarify issues and lead to new discoveries. The findings in the present work will lead to modifications of theory and other testable hypotheses which, in turn, should lead to other hypotheses, and so on. This is how science builds on previous work and is known as the functional approach to theory development. We often identify issues raised in journals, point out problems, extend the issues, or modify theories in order to advance our understanding. As you can see, it is very important to have people participate in our research so that the scientific endeavor can progress. Hopefully, your participation not only helps to advance science, but leads you to understand how we go about conducting research so that we can address important psychological issues.

One of the last things that I want to discuss with you is why, in the beginning, I didn't explain exactly what our hypotheses were. I guess you can see if I told you what we were studying, you might have felt a lot of pressure or *demand* to react one way or the other. You might have felt pressured to react in the way you thought we expected you to on the basis of our theory rather than reacting the way you normally would. The possibility that some participants might react to independent variable manipulations based on what they believe the experimenters expect is called the *demand awareness effect*. This can be a problem in research because our results could reflect nothing having to do with the psychological processes that we're interested in studying, but could simply reflect *demand awareness*. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed. So, I hope you can see how having people know our hypotheses in advance of responding would lead to problems in the interpretation of our data.

If you have any questions about the study or just general questions related to the issues we addressed here, contact us at the phone numbers given below.
Dr. Robert Sinclair 492-3822; Carrie Lavis 492-5645